

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT 21345	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/US04/11663	International filing date (day/month/year) 31 March 2004 (31.03.2004)	Priority date (day/month/year) 04 April 2003 (04.04.2003)	
International Patent Classification (IPC) or national classification and IPC IPC(7): C08J 3/28; C08F 2/38, 255/02 and US Cl.: 522/149, 150, 155, 156, 157, 161; 525/69, 71, 259, 316; 526/204, 220			
Applicant MERCK & CO., INC.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of ___ sheets, as follows:</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 16 September 2004 (16.09.2004)		Date of completion of this report 14 April 2005 (14.04.2005)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer James Seidleck Jean Proctor Paralegal Specialist Telephone No. 703-308-0661	

Form PCT/IPEA/409 (cover sheet)(January 2004)

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/11663

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☒ the description:

pages 1-44 as originally filed/furnished

pages\* NONE received by this Authority on \_\_\_\_\_

pages\* NONE received by this Authority on \_\_\_\_\_

☒ the claims:

pages 45-63 as originally filed/furnished

pages\* NONE as amended (together with any statement) under Article 19

pages\* NONE received by this Authority on \_\_\_\_\_

pages\* NONE received by this Authority on \_\_\_\_\_

☐ the drawings:

pages NONE as originally filed/furnished

pages\* NONE received by this Authority on \_\_\_\_\_

pages\* NONE received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs. \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs. \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/US04/11663

## Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)

Claims 1-12 YES  
Claims NONE NO

Inventive Step (IS)

Claims 1-6 and 8-12 YES  
Claims 7 NO

Industrial Applicability (IA)

Claims 1-12 YES  
Claims NONE NO

### 2. Citations and Explanations (Rule 70.7)

Claims 1-6 and 8-12 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a process for producing a graft copolymer and a composition of said graft copolymer comprising an insoluble solid support that is selected from the group consisting of: polystyrene-divinylbenzene, polystyrene which is radiation grafted to polypropylene or polyethylene, or polytetrafluoroethylene, or polyethylenetetrafluoroethylene, linking segment L, functional segments R1 and R4, and an N-oxyl radical, such that a process comprises the step of microwave irradiating a mixture comprising a compound of the formula II and a compound III specified in the present claims.

The closest reference is WO 00/78740. WO 00/78740 does not disclose the addition step of microwave irradiating a mixture comprising a compound of the formula II and a compound III. Also, the prior art does not disclose the compounds in the present claims 8-12 wherein each chemical formulation of these compounds is polystyrene backbone grafted with specified functional monomer in the presence of an N-oxyl radical.

Claim 7 lacks an inventive step under PCT Article 33(3) as being obvious over WO 00/78740. The difference is that the present claim 7 requires a polystyrene solid-support polymer, whereas WO 00/78740 discloses a polystyrene-divinylbenzene solid support. It would have been obvious to one of ordinary skill in the art to substitute a polystyrene-divinylbenzene backbone polymer in WO 00/78740 with a polystyrene backbone in the absence of a showing of unexpected results derived from using polystyrene-divinylbenzene solid support polymer.

Claims 1-12 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

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**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of: